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AUTHOR Dickinson, Gary
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ABSTRACT

Educational variables and participation in adult education were examined in terms of the following hypotheses: (1) a higher level of achievement in the sequential-unit system will be associated with greater participation in the complementary-functional system; (2) a higher level of achievement within the family-educational system will be associated with greater participation in the complementary-functional system; (3) the influence of the sequential-unit and family-educational systems on participation in the complementary-functional system will be cumulative; and (4) achievement in the sequential-unit and family-educational systems will have differential influence on participation in different aspects of the complementary-functional system. Data were gathered through a socioeconomic survey of rural household heads on the Lower Fraser Valley of British Columbia in 1970. The years of school completed by the respondent which was a measure of achievement in the sequential-unit system, and the educational level of the wife which represented the quality of education available in the family-educational system, were the variables showing the strongest influence on participation. The education of the father, did not show such a strong influence on participation. (NL)

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EDUCATIONAL VARIABLES AND PARTICIPATION

IN ADULT EDUCATION

Gary Dickinson

Adult Education Research Center

University of British Columbia

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Research pertaining to participation in adult education has been concerned chiefly with specific socio-economic and psycho-social characteristics so that it is becoming possible to identify who participates in adult education and who does not. Such characteristics as age, education, occupation, and income, among many others that have been studied, have shown an association with participation. (4, 12, 13, 21) There have been few attempts, however, to extend existing knowledge about participation in adult education beyond the simple identification of associated variables.

Of all the characteristics that have been examined, previous educational background may be the most important dimension to examine in detail as the number of persons participating tends to increase at each successively higher level of educational attainment (12, 17) and the years of school completed is the strongest influence on participation. (4, 7, 16, 21) In most cases only that one aspect of education has been examined, however, the emerging concept of education as a lifelong activity (14) suggests that additional educational characteristics may be important influences on participation. The examination of several elements in the educational backgrounds of participants and their families may lead to greater facility in predicting participation in adult education than is possible when considering only the years of school completed by the participant or non-participant. The purposes of this paper are to review previous research respecting the influence of education on participation, to suggest a conceptual framework for studying additional educational variables, and to present a secondary analysis of data gathered for another purpose as a preliminary test of the hypotheses derived from the conceptual framework.

CONCEPTUAL FRAMEWORK

The concept of education as a lifelong integrated process suggests a new emphasis in participation research in that adult education becomes one aspect of a continuous process instead of a discrete phenomenon to be studied in isolation. Lengrand (14:1) describes lifelong education as the uninterrupted continuation of the educational process to fulfill the aspirations and develop the potentialities of each individual and to meet the ever more pressing demands of a world in transformation. Similarly, Liveright and Ohliger (15:47) note that educators are beginning to refer to lifelong integrated education or education permanente stretching from the home and nursery schools through elementary, secondary, post-secondary, and higher education, and then extending through all the adult years.

The many components of lifelong integrated education have been classified into three systems by Essert and Spence. (9) The family-educational system services chiefly the immature members of the family but it also provides some educational services for other members. The sequential-unit system is characterized by a series of graded steps leading toward higher levels, with achievement usually measured in terms of the successful completion of steps. The complementary-functional system provides opportunities for systematic learning in areas not dealt with or inadequately learned in the family-educational or sequential-unit systems and includes adult education among other activities. As Essert and Spence note, the systems of education are interrelated with the programs and interests of each system partially overlapping (9:262).

The interrelationships among educational systems have not been considered adequately in research pertaining to participation in adult education, rather, there has been a concentration on achievement in the sequential-unit system by the participant or non-participant. The concept of lifelong integrated education suggests that the influence of education is cumulative, therefore, the greater the educational inputs in the three systems, the greater the likelihood of further inputs through participation in adult education. If there is a high level of activity and achievement in the family-educational system and the person has been involved in other complementary-functional learning activities, he may be more apt to participate in adult education than he would be if such features were not present or existed at a lower level. Thus, an enriched educational background may result in more participation than would be expected on the basis of the person's achievement in the sequential-unit system alone. Conversely, participation might be less than expected on the basis of achievement in the sequential-unit system if achievement and activity in the other two systems is relatively low.

HYPOTHESES

Based on the conceptual framework, the following hypotheses were formulated to guide the review of previous research and the analysis of data.

1. A higher level of achievement in the sequential-unit system will be associated with greater participation in the complementary-functional system.

2. A higher level of achievement within the family-educational system will be associated with greater participation in the complementary-functional system.

3. The influence of the sequential-unit and family-educational systems on participation in the complementary-functional system will be cumulative.

   A. Considering all of the educational variables simultaneously will produce stronger associations with participation than when each system is considered separately.

   B. The educational variables possessing the greatest influence on participation will be those which are most immediate and relevant to the individual.

4. Achievement in the sequential-unit and family-educational systems will have a differential influence on participation in different aspects of the complementary-functional system.

DEFINITIONS

Three indicators of activity in the complementary-functional system through participation in adult education were used. The total number of courses taken during the previous three years was the principal dependent variable. The total number of courses was divided into vocational and non-vocational categories on the basis of whether or not the course was perceived as being related to the improvement of job performance or qualifications, and this classification served as the indicator of participation in different aspects of the complementary-functional system. Non-participants were those who had not taken a course during the three year period.

A total of six educational variables were used as predictors. Achievement in the sequential-unit system was indicated by the years of school completed and whether or not formal training in an occupation had been received.

Selected as indicative of the kinds of opportunities available in the family-educational system were the years of school completed by the spouse and father, and whether or not the spouse and father had received training in an occupation.

METHOD

The study reported here consists of a secondary analysis of data collected for another purpose. The data were obtained from rural household heads resident in the Lower Fraser Valley of British Columbia in connection with a socio-economic survey of that area conducted in the summer of 1970. Clusters of four dwellings were identified on detailed map sheets and 200 clusters were chosen in a stratified random sampling procedure which is described in detail by Verner and Dickinson. (20) During fieldwork, 727 occupied dwellings were located. An interview was sought with the male household head in each occupied dwelling and the interview schedule that was used consisted of items pertaining to personal, social, educational, occupation, and income characteristics as well as land use and farm characteristics for those respondents who were engaged in agriculture.

Interviews were obtained from 614 household heads for a completion rate of 84.5 per cent. In 70 cases (9.6 per cent) the household head could not be contacted with three attempts and 43 household heads (5.9 per cent) refused to be interviewed. For purposes of the present study, the characteristics of marital status and sex were controlled in that all single, widowed, divorced, or separated respondents were eliminated as were all female household heads. The resultant sample consisted of 510 married, male household heads.

The data pertaining to Hypotheses 1 and 2 were analyzed by cross-tabulating the six predictor variables against total participation in adult education. Chi square was used to test the significance of the differences ($p < .01$) between the distributions of participants and non-participants for each educational variable, and zero order correlation coefficients were used to measure the bivariate relationships. Hypothesis 3 was tested by a linear multiple regression program (2) which provided a multiple correlation coefficient and partial correlation coefficients which represent the power of each predictor to account for the dependent variable with the other predictors considered simultaneously. Partial correlation coefficients are usually smaller than the zero order coefficients since the redundant covariance shared with the other predictors is removed. (18) Hypothesis 4 was tested using all of the above procedures.

HYPOTHESIS 1

The relationship between achievement in the sequential-unit system and participation in the complementary-functional system by adults has been fairly well established in previous research. An almost universal finding in studies of participation in adult education is a positive relationship between participation and level of education. (4, 7, 12, 13, 17, 19, 21) In most cases, a higher achievement in the sequential-unit system of pre-adult educational institutions is associated with greater participation in adult education so that those with more schooling are more likely to participate than are those with less schooling. Johnstone and Rivera (12:7) noted that the rates of participation in adult education ranged from 4 per cent among persons with no formal schooling to 47 per cent among those who had attended for more than sixteen years, while London, Wenkert, and Hagstrom (17:42) found participation rates varying from 2 per cent for those with less than five years of schooling to 23 per cent among persons with four or more years of college. Booth (3:223)

reported that the non-participant is most likely to appear in that portion of the population which has less than a high school education.

Factors other than educational attainment have shown an association with participation in adult education so that a few persons with low education participate while some with high education do not. Douglah and Moss (8) concluded that controlling for educational level eliminated the influence of most other variables in a group with high education, but six factors remained as significant in a low education group. Goard and Dickinson (10) controlled for education as well as age and found that only social participation and occupational prestige differentiated between participants and non-participants in adult education. The studies cited above indicate that while educational level alone may not account for all of the variations in participation, it does appear to be the most powerful single explanatory factor as had been suggested by others. (4, 7, 13, 16, 21)

Of the total number of respondents included in the present study 21.4 per cent had participated in an adult education course within the last three years. The participants included 9.7 per cent of the group of respondents with eight or less years of schooling, 24.9 per cent in the nine to eleven years category, 31.8 per cent of those with twelve years of school completed, and 40.7 per cent in the group with more than twelve years of schooling. Some 13.4 per cent of those with no job training compared to 28.1 per cent of those with training had taken one or more adult education courses.

The chi square values obtained indicated that there were statistically significant differences in the distributions of participants and non-participants by educational category both for years of school completed and for occupational training. Moreover, there were statistically significant ($p < .01$) positive zero

order correlation coefficients between the number of courses taken and years of school completed (.24) as well as job training (.18). These findings indicate that a higher level of achievement in the sequential-unit system was associated with greater participation in the complementary-functional system as had been hypothesized.

HYPOTHESIS 2

The educational attainment of other family members, which is assumed to be indicative of the quality of education that is provided by the family-educational system, is a relatively unexplored area in participation research. Carson (6), in a study of young adult males, found that the education of the father and mother as well as the number of siblings with college training were related to participation in a combination of both full-time and part-time continuing education, but the extent of part-time participation was not associated with any variable studied. In a study of rural household heads, Goard and Dickinson (10) found that the wives of participants in adult education had more years of schooling than the wives of non-participants. Twice as many children of participants compared to non-participants had completed high school but the education of the father did not differentiate between the two groups. In addition, a significantly greater number of participants than non-participants reported job training for the wife and father. The limited evidence available seems to suggest that the educational background of other family members may be associated with participation in adult education although the nature of the relationship has not been clearly established.

Each of the four family-educational system variables examined in the present study produced a statistically significant difference in the distributions between participants and non-participants. In the analysis by education of the wife, the number of respondents who participated in adult education increased from 11.3 per cent where the wife had eight or less years of schooling to 35.1 per cent

in the twelve years of school completed category, but there was a slight decline to 33.9 per cent participation by respondents whose wives had thirteen or more years of schooling. Where the wife had received training in an occupation, 28.6 per cent of the respondents participated compared to 15.5 per cent where the wife had no training. There were significant positive zero order correlation coefficients between the number of courses taken by the male household head and the years of school completed by the wife (.25) as well as job training received by the wife. (.12).

The family-educational system variables of education and training received by the father appeared to be related to participation in adult education by the respondent. There was an indication that the percentage of participants increased with increased schooling by the father, and participation was significantly higher when the father had some training (32.2 per cent) than when he had none (18.2 per cent). In addition, the zero order correlation coefficients of years of school completed by the father (.15) and training received by the father (.14) in relation to the number of courses taken were both statistically significant. In general, a higher level of educational achievement by other family members appeared to be associated with greater participation in adult education activities by the male household heads.

HYPOTHESIS 3

Linear multiple regression analysis was used to test Hypothesis 3 respecting the cumulative influence of the sequential-unit and family-educational systems on participation in the complementary-functional system. As high intercorrelations among predictors influence the results of multiple regression

analysis, zero order correlation coefficients were computed for each predictor variable in relation to each other predictor. All of the inter-correlations were statistically significant at the .01 level and the coefficients ranged up to .45 for education of the respondent versus education of the wife.

A six-predictor multiple correlation coefficient of .316 was obtained which is statistically significant at the .01 level. Therefore, considering all of the educational variables simultaneously produced a stronger association with participation in the complementary-functional system than when each variable was considered separately.

As Table 2 indicates, only the years of school completed by the wife (.17) and the respondent (.11) remained as significant partial correlation coefficients when the effects of the six predictors were controlled simultaneously. This suggests that Hypothesis 3 B cannot be accepted completely as the educational level of the wife appeared to be a greater influence on participation by the respondent than was his own education and training.

TABLE 1

ZERO ORDER, PARTIAL, AND MULTIPLE CORRELATION COEFFICIENTS FOR PREDICTORS OF TOTAL PARTICIPATION IN ADULT EDUCATION

Variable	Zero order	Partial
Respondent's education	.24*	.11*
Respondent's training	.18*	.08
Wife's education	.25*	.17*
Wife's training	.12*	.01
Father's education	.15*	.03
Father's training	.14*	.07
Multiple correlation coefficient = .316*		

* $p < .01$

HYPOTHESIS 4

As there is more than one component of the complementary-functional system, it may be that the family-educational and sequential-unit systems have a differing relationship with each of its constituent elements. Previous research suggests that persons engaging in adult education tend to do so at institutions which approximate their level of education upon leaving the sequential-unit system. Brunner (4) noted that public school adult education programs serve a significantly larger number of people with less than a high school education than do other urban programs whereas those enrolling in university extension classes have an above average amount of education and junior college programs attract persons of educational status midway between the public school and university extension programs. The Co-operative Extension Service appears to attract more of those with less education whereas pre-packaged discussion programs attract the better educated. (21) In some instances institutions offering adult education courses may draw clientele almost exclusively from one level of achievement in the sequential-unit system. Johnstone and Rivera (12:86) report that participants in college and university extension courses are overwhelmingly persons who have already had some college experience while virtually none are persons with only a grade-school education.

Johnstone and Rivera (12:84) reported little variation in the educational levels of persons enrolled in different methods of study, however, lectures were most heavily dominated and group discussions the least dominated by those with some college education. With subject matter held constant and the method of study varied, two studies reported conflicting results with respect to the educational level of participants. Hill (11) found no statistically significant difference between the educational level of participants in lecture classes and discussion groups whereas Buttedahl (5) reported that 60.1 per cent of lecture as opposed to 37 per cent of discussion group participants had more than twelve years of schooling.

The choice of subject matter by participants in adult education may be influenced by their level of education. The data provided by Johnstone and Rivera (12:80) indicate that persons who had attended college were over-represented in all subject fields but to the greatest extent in academic and public affairs courses and to the least extent in homemaking and religious studies. Persons with high school education were found most often in home and family life courses and least often in public affairs and academic programs, while those with grade school education attended religious studies and agriculture courses more than they did academic or hobby and recreational courses.

The only differentiation of elements in the complementary-functional system that was possible in the present study was the vocational or non-vocational classification of courses taken during the past three years. Of the total number of respondents, 14.3 per cent had taken at least one vocational course and 8.4 per cent had participated in one or more non-vocational courses. The analysis of educational variables for vocational courses indicated a statistically significant difference in the distributions between participants and non-participants in every case. The six predictor multiple correlation for participation in vocational courses was .303 and significant partial correlations were noted with respect to the years of school completed by the wife (.18) and the respondents (.12). (Table 2)

None of the educational variables studied emerged as statistically significant in the analysis of participation in non-vocational courses, therefore, achievement in the sequential-unit and family-educational systems was not related to participation in non-vocational courses in the complementary-functional system whereas there were such associations among systems for vocational participation.

TABLE 2
ZERO ORDER, PARTIAL, AND MULTIPLE CORRELATION COEFFICIENTS FOR PREDICTORS OF PARTICIPATION IN VOCATIONAL ADULT EDUCATION

Variable	Zero order	Partial
Respondent's education	.24*	.12*
Respondent's training	.16*	.08
Wife's education	.25*	.18*
Wife's training	.12*	-.03
Father's education	.13*	.01
Father's training	.13*	.07
Multiple correlation coefficient = .303*		

*p < .01

DISCUSSION

Previous research pertaining to the relationship between education and participation in adult education has indicated that the years of school completed is the most efficient indicator of participation. Additional educational variables were examined in the present study and distinct bivariate associations with participation were observed, however, the influence of most of the predictor variables tended to diminish in the multivariate analysis. When the six predictor variables were considered simultaneously, only the years of school completed by the respondent and the wife retained a significant association with total participation in adult education.

The prominent role of the educational level of the wife in relation to participation by the husband was somewhat unexpected in that previous research has emphasized the importance of the educational achievement of the participant while almost completely ignoring the education of the spouse. This finding may parallel that reported in some studies respecting the diffusion of innovations which have observed a relationship between the wife's education and the husband's use of agricultural information sources and adoption of new farm practices. (1)

The findings reported here offer some support to the conceptualization of education as an integrated lifelong process with adult education forming one aspect of that process and there appear to be links among the three systems described by Essert and Spence. (9) In the present study, the years of school completed by the respondent which was a measure of achievement in the sequential-unit system, and the educational level of the wife which represented the quality of education available in the family-educational system, were the variables showing the strongest influence on participation in adult education. The education of the father, which represented a more distant aspect of the family-educational system, did not show such a strong influence on participation in adult education.

There would appear to be a need for additional research to clarify the nature of the relationship between educational variables and participation in adult education. Such studies might seek more direct and more refined measures of educational variables, especially with respect to the family-educational system as it is there that the motivation to participate in adult education is first developed. The indicators used in the present study were crude, nevertheless they did suggest that the consideration of educational variables other than the years of school completed by the respondent offers considerable promise for increasing the ability to account for variations in participation. The conceptual framework suggested here may be useful in the systematic conduct of further research.

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